



New main engine promises even safer Shuttle ride

by Lynnette Madison

The next Space Shuttle crew can expect an even safer ride into orbit, thanks to the completion of

a new Space Shuttle Main Engine.

Workers installed one of the new engines, called the Block II configuration, on Space Shuttle Atlantis, April 24, at Kennedy

Space Center, Fla.

Atlantis' first flight using the new engine is targeted for no earlier than June 14 on mission STS-104 to the International Space Station. Atlantis will use one Block II main engine and two Block IIA main engines to complete its full complement of three engines.

Improvements to the main engines, managed by the Marshall Center, continue to evolve to produce the safest, most reliable and reusable space transportation system in the world.

The Block II Main Engine configuration includes a new Pratt & Whitney high-pressure fuel turbopump.

The primary modification to the engine is elimination of welds by using a casting process for the housing, and an integral shaft/disk with thin-wall blades and ceramic bearings. This makes the pump stronger and should increase the number of flights between major overhauls. Although the new pump adds 300 pounds of weight to the Shuttle, the results

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NASA photo

Workers at Kennedy Space Center, Fla., prepare the Block II engine for installation.

Marshall Center extends CSC services contract

The Marshall Center has elected to continue an existing contract with the Computer Sciences Corp. (CSC) of Falls Church, Va., to provide information services to Marshall and all other NASA Centers and facilities.

The priced option, valued at \$108,428,576, covers the period of May 1, 2001, through April 30, 2002. It continues services under a contract entitled "Program Information Systems Mission Services (PrISMS)," originally awarded to CSC in 1994. This is the last of six-priced contract options that brings the contract total to approximately \$950 million.

Work performed by CSC and its subcontractor under PrISMS includes support for NASA computer systems, applications software, telephone systems and audio-visual services. It also includes a range of services, including support of information management systems and the agency's Automated Data Processing Consolidation Center at Marshall.

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Local students to visit Marshall to help produce Earth-orbiting 'disco ball' satellite

Students from Ed White Middle School in Huntsville visited the Marshall Center April 26 to help produce some of the mirrors for Starshine 3, a satellite which will eventually resemble a high-tech disco ball and be placed into Earth orbit.

The sphere, which will be covered by hundreds of quarter-sized mirrors that will reflect sunlight to observers on the ground, will help students study the effect of solar activity on Earth's atmosphere. Ed White is among 500 schools worldwide whose students helped grind and polish mirrors for Starshine.

April 26, the local students watched experts at Marshall's Space Optics Manufacturing Technology Center coat and seal the total of 1,200 mirrors the students are contributing to the project. The mirrors will then be shipped to the

Naval Research Laboratory in Washington, D.C., for installation on the satellite. Another 300 professionally polished mirrors from Hill Air Force Base in Ogden, Utah, will bring the total up to 1,500 mirrors. This will improve the sunlight flash rate and make the satellite more visible at twilight as it orbits the Earth.

Set for launch Aug. 31, Starshine 3 will fly on NASA's Kodiak Star mission out of the Kodiak Launch Complex in Alaska. The unmanned launch vehicle for this mission will be a Lockheed Martin Athena I. Starshine 3 will orbit the Earth for several years. During this time, participating students will visually track the satellite and report their findings on the project's Web site at:

www.azinet.com/starshine/



Vince Huegele, of Marshall's Space Optics Manufacturing Technology Center, inspects the coating on the "Starshine" mirrors.



Photos by Emmett Given, NASA/Marshall Space Flight Center



Upper left photo: Tommy Thompson, left, shows students the completed mirrors from inside the mirror preparation room.

Upper right photo: Students and teachers from Ed White Middle School in Huntsville unpack the "Starshine" mirrors mailed to the Marshall Center from Jacksonville State University, Ala.

Dr. Alan Shapiro, left, displays the coated mirrors in the coating chamber.

NASA Administrator selects 2001 Fellowship Awards

NASA release

Two Marshall Center employees have been selected to receive Administrator's Fellowships. The Fellowship Program is designed to enhance the development of NASA employees and the mathematics, science, engineering and technology faculty of minority-serving colleges and universities.



Whorton

Mark Whorton and Alan Chow from

Marshall's Space Transportation Directorate were selected. Other fellowship recipients are Willie Ray Mackey of Glenn Research Center, Ohio; Porfiro Beltran of Goddard Space Flight Center, Md.; Benjamin Oni of Tuskegee University; Shirlette Milton of Texas Southern University in Houston; Nadipuram Prasad of New Mexico State University in Las Cruces; Dipendra Sengupta of Elizabeth City State University in North Carolina; Olufisyo Jegelowo of Texas Southern University; and Maxine Highsmith of Shaw University, Raleigh, N.C.

Besides professional development,



Chow

the program's goal is twofold: to enhance minority-serving institutions' efforts to assist NASA in its research and development and to give NASA employees the chance to teach and conduct research at minority colleges and universities.

Administered by the United Negro College Fund Special Programs Corporation (UNCFSP), this year's program begins in August. For information on the upcoming 2002 competition, call (202) 737-8623 or visit the Internet at: <http://www.uncfsp.org>

Disposal sales a huge success

from the Logistics Services Department

In a combined effort, Marshall and the Goddard Space Flight Center teamed up during the week of April 2-6 for the most rewarding disposal sales event in Marshall's history.

On April 4, a retail sale was held at the new off-site disposal facility at the Intergraph Complex in Bldg. 21. This sale included 50 excess computer systems competitively priced from \$200-\$400 each. All 50 items were sold and many requests were received for a repeat retail sale of excess government computer systems.

The next day proved eventful with the auction of 5,473 items, including government automated data processing equipment, testing and electronic equipment, mainframe systems, typewriters, electrical racks, office furniture, air conditioners, forklift trucks, power lawn mowers, welding machines, heat pumps, metal tanks, trailers, and an environmental testing chamber.

All excess items were sold to 115 registered bidders during the six-hour auction April 5.

The work and dedication between the two Centers allowed Marshall to shut down disposal operations at the condemned on-site Bldg. 8025 without shipping remaining assets to the new Intergraph Disposal facility off Dunlap Road in Madison. All future disposal sales, both retail and auction, will be held at the new facility.

Main engine

Continued from page 1

are a more reliable and safer engine because of increased pump robustness.

"With this design change, we believe we have more than doubled the reliability of the engine," said George Hopson, manager of the Space Shuttle Main Engine Project at Marshall.

Previous improvements to the Space Shuttle Main Engine include the Block I configuration, which featured an improved high-pressure liquid oxygen turbopump, two-duct engine power head and single-coil heat exchanger. The turbopump incorporated ball bearings of silicon nitride — a ceramic material 30 percent harder and 40 percent lighter than steel. The Block I engine first flew in 1995.

The Block IIA engine added a larger-throat main-combustion chamber to Block I improvements. The new chamber lowered the engine's operating pressures and temperatures while increasing the engine's operational safety margin. This engine first flew in 1998.

Developed in the 1970s by Marshall, the Space Shuttle Main Engine is the world's most sophisticated reusable rocket engine. Each powerful main engine is 14 feet long, weighs about 7,000 pounds and is 7.5 feet in diameter at the end of the nozzle. The engines operate for about eight-and-one-half minutes during liftoff and ascent and shut down just before the Shuttle reaches low-Earth orbit.

The engines perform at greater temperature extremes than any mechanical system in common use today. At minus 423 degrees Fahrenheit, the liquid hydrogen fuel is the second coldest liquid on Earth. When it and the liquid oxygen are combusted, the temperature in the main combustion chamber of the engine is 6,000 degrees Fahrenheit, hotter than the boiling point of iron. Boeing Rocketdyne, Canoga Park, Calif., manufactures the Space Shuttle Main Engine.

The writer, employed by ASRI, supports the Media Relations Department.

McBrayer retiring after 38 years with NASA

by Debra Valine

Robert McBrayer, director of Marshall's Systems Management Office, retires Thursday after serving NASA for 38 years. A replacement has not been named.



McBrayer

McBrayer started his NASA career in 1963 at what was the Manned Spacecraft Center, in Houston. He moved to Marshall in 1966 to work on Skylab, where he found an organization very much different from the one he was accustomed to.

"Marshall management was wide open to communication," McBrayer said. "In Houston there was a very rigid reporting hierarchy that had to be followed. At Marshall, it was not unusual to see a copy of a memorandum from Wernher von Braun circulate across my desk. Everybody seemed to

know the issues and what we were doing to resolve them."

Upon his arrival at Marshall, McBrayer found himself thrown into the Skylab project as a crew interface coordinator. Suddenly he was interfacing with the crew and everything on Skylab. While on that

assignment, he received a NASA invention award for improving the quality of astronaut survival equipment and reducing spacecraft weight for launch.

"Since I was from Houston, I was expected to know everything about crew operations," McBrayer said. "Marshall was not as accustomed to the operations end of a project as Houston."

The biggest change McBrayer has seen at Marshall involves moving from major projects like Saturn V and the Space Shuttle program to smaller programs and projects such as the Spacelab Payloads, carried up on the Shuttle.

"When Shuttle was being designed and built, it was a lot different."

He sees Marshall playing a key role in development of the next generation space vehicle. "Marshall must lead NASA in the design and development of the next generation space vehicle," McBrayer said. "Also, our payload operation capability at Marshall will continue to be important. There will always be payloads for the International Space Station."

Highlights in McBrayer's career at NASA include his work on Skylab, working in the Payload Projects Office, and directing the Systems Management Office, developing processes and

plans that will guide Marshall as it moves forward in space exploration.

"Skylab was really a highlight of my career," McBrayer said. "Coming to Marshall and working on Skylab was a quantum leap in the levels of management I interacted with. I had been at Houston for three years when I walked into the division director's office for the first time. Right away at Marshall I was briefing von Braun and the Skylab crews. There were 16 astronauts involved in Skylab, and I met and worked with each one."

He entered the Payload Operations arena at the ground level after Skylab. "I worked in about every aspect of payloads until I became an assistant mission manager. A mission manager was in charge of the whole payload during a Shuttle mission. It was just another step up in the people I worked



File photos

McBrayer, left, greets STS-26 astronaut Dr. George D. "Pinky" Nelson, right, during a crew visit. Bob Lake, second from left, and Jim Downey, second from right, are in the background.

'... attitude is everything. They were going to do 100 percent — 110 percent — to get the job done. That attitude is the NASA culture, and nowhere is it more visible than at Marshall.'

— McBrayer

with. Skylab was Marshall, Johnson and contractors. Spacelab payloads were international and involved all the NASA Centers in one way or another. There was a lot of responsibility, accountability, and freedom to make decisions included in the mission management job." McBrayer was assistant mission manager for two Spacelab missions and mission manager for two additional Spacelab missions.

The people in the Systems Management Office make his job as director another highlight of his career, McBrayer said. "The people in this office are exceptional. They are highly motivated, self-starters — and that makes my job much easier." The Systems Management Office develops and coordinates processes for project management, systems engineering, cost engineering and export control for Marshall.

McBrayer also worked with the NASA Program Management Council Working Group and the NASA Integrated Action Team, developing a new and innovative process for NASA program and project managers.

"Working at the NASA level with the Program Management Council Working Group and the NASA Integrated Action Team gave me an opportunity to work with people across the Agency that were really dedicated to doing something good for NASA," McBrayer said. "Putting processes into place for the future of NASA is what I consider a good legacy for me to leave Marshall and NASA."

McBrayer's philosophy

McBrayer followed one simple tenet his entire career: Doing the best he could with what he had wherever he was. "Theodore Roosevelt said that first, but that is what everybody at NASA is doing — I think it works. I really believe life is about 10 percent what happens to you and 90 percent how you react to what has happened to you. That means attitude is everything.



McBrayer managed the STS-42 International Microgravity Laboratory-1 mission payload in 1992.

"Most of the time, things happen to us that we cannot control," McBrayer said. "What matters is how we deal with it. One of the most dramatic things I witnessed was an incident during Spacelab 1. Nobody knew what was expected, and there was a lot of arguing between the Centers and the different personalities prior to launch.

"But I was at Houston on console when we got ready to launch Spacelab 1," he said. "When the flight director was polling the Centers to find out if they were 'go for launch,' all of that arguing stopped, and everybody was perfectly in line with what we needed to do. They were going to do 100 percent — 110 percent — to get the job done. That attitude is the NASA culture, and nowhere is it more visible than at Marshall."

McBrayer grew up in Temple, Ga., where he graduated from Temple High School in 1958. He received his bachelor's degree in mechanical engineering from the Georgia Institute of Technology in Atlanta in 1962. He has received many distinguished awards including the Director's Commendation Award and the NASA Exceptional Achievement Medal. He is a member of the National Space Club.

He and his wife, the former Rebecca Morris, also of Temple, have two married sons, Mark and Michael, and three grandchildren, Avery, Alyse and Dalton. They plan to remain in Huntsville.

The writer, employed by ASRI, is the Marshall Star editor.

Saturday marks 40th anniversary of Shepard's Mercury-Redstone flight

Saturday will mark the 40th anniversary of Freedom Seven's historic flight and the birth of the United States' crewed space program. The small rocket that propelled Freedom Seven and Alan Shepard was a Mercury-Redstone provided by the Marshall Center.

Though Shepard's journey lasted only 15 minutes, it was the beginning of a great endeavor that would eventually land Americans on the Moon and lead to the creation of a new national resource — the Space Shuttle.

At 9:34 a.m. on May 5, 1961, the slender black and white Redstone rocket roared to life.

The Redstone boosted a tiny Mercury spacecraft containing Shepard on a ballistic trajectory that would peak 116 miles above the Earth's surface and bring Freedom Seven to a splash-down in the Atlantic Ocean a little over 300 miles downrange from Cape Canaveral, Fla.

America's first human-tended mission was an unqualified success.

Paving way for X-37, third X-40A free flight successful

The X-40A vehicle successfully performed a third free flight test April 26 at Dryden Flight Research Center at Edwards, Calif. The X-40A was lifted by an Army Chinook helicopter to an altitude of 14,975 feet (4,564 meters) and released at 9:33 a.m. CDT, reaching a speed of about 430 feet (131 meters) per second to complete the test when the wheels rolled to a stop at 9:35 a.m. CDT.

"I'm very pleased with the near flawless performance of the X-40A," said Susan Turner, Marshall's X-37 program manager. "This is our third successful flight test of the vehicle, and each one enables us to better understand the systems that later will guide the flight of the X-37."

Test objectives from this latest test focused on complex maneuvers, such as monitoring vehicle performance during pitch adjustments — when the nose is raised and lowered. A series of up to seven free flights is planned.

EXPRESS Racks delivered

Research experiments installed in Destiny laboratory

All research experiments ferried to the Space Station by Space Shuttle Endeavour were installed in the Destiny laboratory module last week, including the orbiting laboratory's first three U.S. commercial payloads.

Research now on board will grow the lab's first plants for seed production, measure vibrations and radiation on the Station, and study fluid physics, drug manufacturing processes and the structure of biological substances that play many roles in humans, animals and plants.

"We've activated our first science rack, with four payloads continuously powered," said John Uri of NASA's Johnson Space Center, Lead Increment Scientist for Expedition Two. "That is a big milestone."

The Payload Operations Center at Marshall manages all science research experiment operations aboard the International Space Station. The center is also home for coordination of the mission-planning work of a variety of international sources, all science payload deliveries and

retrieval, and payload training and payload safety programs for the Station crew and all ground personnel.

EXPRESS Rack 1 was transferred to the Station and activated on Tuesday. On Wednesday, the crew installed four experiments in the rack:

- the Commercial Generic Bioprocessing Apparatus (CGBA),
- Commercial Protein Crystal Growth-High Density (CPCG-H), and
- Protein Crystal Growth-Single Thermal Enclosure System (PCG-STES) Units 9 and 10.

All four experiments are now powered and CGBA and CPCG are activated and collecting science data.

The rack contains three other experiments that were installed on the ground before launch:

- Advanced Astroculture (ADVASC),
- Microgravity Acceleration Measurement System (MAMS), and
- Space Acceleration Measurement System (SAMS).

CGBA, CPCG-H and ADVASC are the Station's first commercial payloads,

sponsored by NASA's Commercial Space Centers, managed by the Space Product Development Program at Marshall.

Commercial Space Centers, located primarily at academic institutions and funded by NASA, academia and industry, develop experiment equipment that companies use to pursue specific areas of commercial research. Industry has the opportunity to commercialize products that may be developed as a result of the research.

EXPRESS Rack 2 also was transferred to the lab on Tuesday, and the Station crew on Wednesday transferred and installed the Experiment on Physics of Colloids in Space — the first fluid physics experiment managed by NASA's Glenn Research Center in Cleveland, Ohio.

The rack also contains Active Rack Isolation System (ARIS) and ARIS ISS Characterization Experiment (ARIS-ICE), sponsored by the Boeing Company, Seattle, Wash. The rack is scheduled for activation in early May.

Center Announcements

Blood pressure screenings

May is High Blood Pressure Month and the Marshall Center is participating in the National Institutes of Health-sponsored observance by offering blood pressure screenings for employees. While the Medical Center will check your blood pressure any workday from noon-3 p.m., this special emphasis in May is to raise awareness of the importance of monitoring blood pressure. Employees may stop by the Medical Center in Bldg. 4249 any day between noon-3 p.m. HEMSI paramedics assigned to Marshall will stop at designated buildings once during the month to perform blood pressure checks. The buildings are 4200, 4203 and 4610. More information on these visits will be made available at a later date.

Time and attendance

A new Web-based time and attendance product will be rolled out at Marshall over the next few pay periods. The product, WebTADS, has been tested within the Chief Financial Office. It allows the employee the option of entering their own time or they can continue to

have a timekeeper enter their time. Employees and timekeepers will be notified of the training schedule as their implementation time nears. Prior to implementing, individuals need to be sure their Web browsers are upgraded to the latest versions before they attend the training — Internet Explorer 5.0 or higher and Netscape 4.6 or higher.

Safety awareness program

A safety awareness program aimed at slips, trips and falls will be held from 9-10 a.m. May 16 in Morris Auditorium. Supervisors may substitute this program for the monthly safety meeting.

Public Service Recognition Week

Jim Kennedy, Marshall Center deputy director, will speak at the Public Service Recognition Week luncheon May 9 at the Huntsville Marriott. Tickets — at \$17 each — are available through Friday from admin officers. This event is being coordinated by Madison area government employees and is being coordinated for the Marshall Center by the Government and Community Relations Department.

For more information, call Rosa Kilpatrick at 544-0042.

Clubs and Meetings

ASEM meets

The American Society for Engineering Management will meet at 11:30 a.m. May 15 in the Regimental Room of the Redstone Arsenal Officers' and Civilians' Club. Alex Hardy, director of Cummings Research Park, will speak. A fee of \$2 per person is due at the door. To attend, call Pam Takada at 544-3545 or send an e-mail to: pam.takada@msfc.nasa.gov

Dance lessons

Waltz and cha-cha dance lessons are scheduled for the four Monday nights in May at Saint Stephens Episcopal Church on Whitesburg Drive. Beginner and intermediate lessons will be taught from 7-8 p.m. Rick Jones, a certified dance instructor, will teach. Cost is \$5 per person per night. For more information, call Woody Bombara at 650-0200.



Photo by Emmett Given, NASA/Marshall Space Flight Center

Hello, children

Marshall Center Director Art Stephenson talks to children of Asian-Pacific American employees following signing of the proclamation naming May Asian-Pacific American Heritage Month. A program and festival will be held from 2-5 p.m. May 17 at the Redstone Arsenal Recreation Center in Bldg. 3711. For information, call 544-0088 or 882-0733.

Employee Ads

Miscellaneous

- ★ Magic Chief dishwasher; range with slide out oven and vent hood, almond color; \$100 each. 539-0263
- ★ Half moon bar, 42 diameter, 40 height, tan color, mirror border top, two iron stools, \$125. 881-1305
- ★ Nordic-Trac dual motion Nordic Rider exercise machine, \$75. 851-0893
- ★ Little Tykes kitchen w/accessories, \$20; LT vanity, \$8; Fisher-Price washing machine, \$8. 828-4502
- ★ HP computer, 400 mhz, no monitor, \$350. 325-6000
- ★ Aluminum boat, 12', 10 HP, Johnson outboard, trailer, \$425. 931-455-2465
- ★ Natural wood futon sofa, \$175; queen-size mattress and box springs, 1 yr. old, \$200; two matching end tables, \$30; 772-0562
- ★ White 3-drawer dresser/changing table, \$125; bearded dragon lizard w/accessories, \$250. 922-9387
- ★ 1982 Allegro, 27' motorhome, new tires/beauty rims, sleeps 8, 6.5K Onan generator, built-in gas grill, microwave, low miles, \$9,000. 990-7708/7705
- ★ American racing classic five-spoke chrome wheels, 15x8, 4.5" pattern w/Dunlop 265-50 tires, two additional tires, \$500. 325-1961
- ★ Latin percussion congas, new, \$649. 881-0755
- ★ Surf fishing rods, 2, \$30 for both; five-gallon aquarium w/rock and screen cover, new, \$10. 682-5181
- ★ Horse saddle, one year old, \$350. 830-0866
- ★ Children's swimsuits w/floatation panels, X-small (22-35 lbs.), small (33-65 lbs.), medium (55-75 lbs.), \$30 each. 971-2773
- ★ Baby blanket, hand crocheted in heart pattern, 32x31", ivory cotton yarn w/olive green satin lining, new, \$30. 895-9103
- ★ White slide-in camper (Shadow Cruiser), a/c, refrigerator, oven, toilet/bath, TV connection, \$5,000. 350-3177
- ★ Marquis diamond ring, 1/2 carat, white gold, \$700 obo; 1999 Fender Stratocaster guitar w/1962 strat pickups, \$800 obo.

461-7154

- ★ White and oak color kitchen table, w/6 chairs & hutch, \$150. 852-2852 after 5 p.m.
- ★ Temporary electric pole for construction. 259-1834
- ★ Upright piano; maple tables & chairs; couch w/matching rocker, stuffed chair; bedroom suite. 828-5253
- ★ Sleeper sofa, recently covered, designer fabric, shades of green & wine, \$295. 881-0883
- ★ Storm windows, aluminum frame, various sizes, \$10 each. 426-4325
- ★ Rare prints, "Duty Calls," \$750; "Scout's Blunder," \$650; Civil War artist Don Stivers, n/s/COA. 653-3625
- ★ Cherry dining room table w/two extensions and six chairs, \$950. 881-4701
- ★ 1989 Wellcraft 192 Classic, cuddy cabin, 4.3L, V-6 Mercruiser, dry stored for life, \$6,500. 797-6173/880-8008
- ★ 1986 Bayliner Contessa cabin cruiser, 28', new engine, sleeps six, fully equipped, \$15,000. 772-0562
- ★ Queen-size mattress and box springs, \$90. 971-0048

Vehicles

- ★ 1986 Ford F150 Lariat, 351 cu. in, A/C-A/T, electric windows/locks, cab lights, one-owner, 117K miles, \$2,300 firm. 859-5654
- ★ 1992 Lexus LS 400, 162.6K miles, \$6,900. 534-8483
- ★ 1974 Pontiac GTO, manual transmission, a/c, ps, V-8, \$6,000. 353-7371
- ★ 1988 Ford F150 XLT, 5.0 liter, V-8, automatic, new tires & brakes, am/fm CD, blue, original owner, \$4,500. 830-2806 after 5 p.m.
- ★ 1998 Ford Mustang GT, 5-speed, all-power, premium sound w/CD, 55K miles, \$13,750. 722-3432/256-586-7658
- ★ 1992 Mitsubishi Galant, 4-door sedan, maroon, auto, \$3,800. 533-2254
- ★ 1996 Chevrolet Blazer, 4WD, automatic, a/c, LT pkg., leather, CD, 60K miles, dark green, \$12,500. 658-6183
- ★ 1989 Volvo 760 Turbo Intercooler station wagon, gray w/red leather, skylight, 145K

miles, \$4,300. 534-2706

- ★ 1994 Dodge Grand Caravan SE, sport package, one-owner, dual air, new Michelins, 103K miles, \$5,900 obo. 837-5590
- ★ 1996 Acura SLX, one-owner, 4WD, CD changer, moon-roof, \$15,900. 539-4508
- ★ 1996 Chrysler Concorde LX, 43K miles, green w/gray interior, sun-roof, tape, child seat, \$6,500 obo. 837-8512
- ★ 1992 Dodge Caravan van, low miles, new tires, asking \$4,200. 461-8182
- ★ 1987 VW Quantum, S.W., 180K miles, one-owner, \$2,500. 771-7590
- ★ 1979 Chevy pickup, 93K miles, automatic, long bed, tool box, \$1,750. 650-0677

Free

- ★ To good home, four adorable kittens, two male, two female. 533-2254

Wanted

- ★ Lawn plug aerator for attachment to lawn mower. 757-8982
- ★ Old Ford tractor (8N, 9N, etc.) in good condition. 723-4103 after 6 p.m.

Obituary

Kinser, Morris, 71, of Decatur, died April 17. He retired from Marshall in 1988 where he worked as an electronics engineer.

To thank you

I want to thank all of you for the cards, flowers, prayers, phone calls and all acts of kindness shown during the loss of my mother.

— **Judy Pettus, CD70**

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